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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,839	07/31/2001	Hiroya Fukuyama	P 282739 SPO-2467	1707
909	7590	10/03/2003	EXAMINER	
PILLSBURY WINTHROP, LLP			FINEMAN, LEE A	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	

2872

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,839

Applicant(s)

FUKUYAMA, HIROYA

Examiner

Lee Fineman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to an amendment filed 17 July 2003 in paper number 6 in which claims 1, 5, 8-9 and 16-18 were amended. Claims 1-19 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 5, 8-10, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidovits et al., U.S. Patent No. 3,643,015.

Regarding claims 1 and 9, Davidovits et al. disclose an optical apparatus (fig. 3) having an objective unit (figs. 3 and 4) comprising an objective lens (60); an objective frame (61) that holds the objective lens; an outer frame member (66) which supports the objective frame and has a connecting portion (67) to be connected with the optical apparatus; an objective holder (62) that is provided on the outer frame member (fig. 3) and elastically holds the objective frame (in so far as the objective frame position can be moved/changed); and at least one actuator (column 5, lines 24-57 and column 3, lines 60-61) that causes relative movement between the objective frame (61) and the outer frame member (66) to thereby drive the objective lens. Davidovits et al. disclose the claimed invention except for the outer frame member housing the objective frame. Use of housings is well known in the art of microscopy to enclose and protect parts of the microscope. It would have been obvious to one of ordinary skill in the art at the time the

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invention was made to extended the outer frame member of Davidovits et al. to house the objective frame and other components of the objective unit to enclose and protect the components from damage.

Regarding claims 2 and 10, Davidovits et al. disclose the claimed invention as set forth above and states that the movement of the objective is small enough so that the total amount of incident parallel radiant energy intercepted by the lens system is not appreciably altered (column 2, lines 64-66) but does not specifically discuss the ratio of light intensity at a center of illumination (I_{on}) to light intensity (I_{off}) at a position from the center of said illumination light. Simply stated, I_{off} is the brightness at the edge of the field and off-axis brightness is a common concern to those of ordinary skill in the art. Further, the provision of optical systems having a ratio of I_{on} / I_{off} having at least the claimed ratio are well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made for Davidovits et al. to have at least the claimed ratio of I_{on} / I_{off} in order to provide an evenly illuminated field throughout the excursion of the objective lens.

Regarding claims 8 and 17, Davidovits et al. disclose the claimed invention except for the duplication of units including an objective lens, an objective holder and an actuator. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a duplication of units, since it has been held that a mere duplication of working parts of a device involves only routine skill in the art. One would have been motivated to duplicate the units for the purpose of providing more flexibility in the system with different viewing options.

In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)

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Regarding claims 5 and 13, Davidovits et al. further disclose that the objective unit includes three sets of actuators (column 5, lines 32-46) so that a first actuator is placed to move said objective lens in a first direction (X), a second actuator is placed to move said objective lens in a second direction (Z) different from said first direction and a third actuator that is placed to move said objective lens in a third direction (Y) different from each of said first direction and said second direction.

Regarding claim 14, Davidovits et al. further disclose having an illumination and detection unit (fig. 3) including a light source (15), a photodetector (44) and a light splitting and combining member (40) that introduces light from said light source into said objective lens and introduces signal light passing through said objective lens into said photodetector.

3. Claims 3-4 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidovits et al. as applied to claims 2 and 10 above and in further view of applicant's admitted prior art, page 25, lines 22-26.

Regarding claims 3-4 and 11-12, Davidovits et al. further disclose a relay optical system (from 60 to 42) but does not disclose an element, which combines a light source and photodetector, and including the element, the relay optical system, and the light splitting and combining member within objective unit. Applicant's admitted prior art, page 25, lines 22-26 teaches a semiconductor laser element as a combination of a light source with a photodetector. It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the light source and photodetector of Davidovits et al. with the semiconductor laser element as taught by applicant's admitted prior art to reduce the number of parts in the

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system and thereby save money. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to place the element, the relay optical system, and the light splitting and combining member within the objective unit to make the system more compact.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davidovits et al. as applied to claim 2 above and in further view of Emmel, U.S. Patent No. 4,483,589.

Davidovits et al. as applied to claim 2 above disclose the claimed invention except wherein the objective holder holds a plurality of objective lenses. Emmel teaches an objective unit (fig. 1) with an objective holder (14) that holds a plurality of objective lenses (42 and 42'). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the objective holder of Davidovits et al. to hold a plurality of objective lenses as suggested by Emmel to provide more flexibility in the system with different viewing options.

5. Claims 6, 15, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidovits et al. as applied to claims 2 and 10 above and in further view of Aizaki et al., Japanese Published Application JP2001091849 A.

Davidovits et al. as applied to claims 2 and 10 above disclose the claimed invention except wherein said outer frame member has plane-parallel transparent member, said transparent member being placed at a top of said objective lens and an observation method wherein a space between said transparent member and a specimen is filled with a transparent liquid medium to observe said specimen and wherein a space between said objective lens and said transparent

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member is filled with a different transparent liquid medium of substantially the same refractive index as a refractive index of said transparent liquid medium. Aizaki et al. teach an objective unit (fig. 1) with wherein said outer frame member (13) has plane-parallel transparent member (181), said transparent member being placed at a top (fig. 1) of said objective lens (2) and an observation method wherein a space between said transparent member and a specimen (20) is filled with a transparent liquid medium (22) to observe said specimen and wherein a space between said objective lens and said transparent member is filled with a different transparent liquid medium (19) of substantially the same refractive index as a refractive index of said transparent liquid medium. It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a plane-parallel transparent member to the outer frame so that a space between said transparent member and a specimen is filled with a transparent liquid medium to observe said specimen and wherein a space between said objective lens and said transparent member is filled with a different transparent liquid medium of substantially the same refractive index as a refractive index of said transparent liquid medium to the system of Davidovits et al., as taught by Aizaki et al., to be able to observe specimens immersed in a liquid environment.

6. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidovits et al. as applied to claims 2 and 10 above and in further view of Guerra, U.S. Patent No. 6,014,166.

Davidovits et al. as applied to claims 2 and 10 above disclose the claimed invention except wherein said outer frame member has plane-parallel transparent member, said transparent

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member being placed at a top of said objective lens. Guerra teaches an optical apparatus with an objective unit (fig. 16) with wherein said outer frame member (148) has plane-parallel transparent member (86), said transparent member being placed at a top (fig. 16) of said objective lens (50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a plane-parallel transparent member to the outer frame to be able to provide uniform spacing from the objective lens to a specimen in a liquid or gelatinous form (Guerra, column 3, lines 2-4)

7. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidovits et al. view of Guerra as applied to claim 15 above and in further view of Tomimatsu, U.S. Patent No. 5,870,223.

Davidovits et al. in view of Guerra as applied to claim 15 above further disclose an observation method wherein a space between said objective lens (50) and said transparent member (86) is filled with a transparent liquid medium (94). Davidovits et al. in view of Guerra disclose the claimed invention except wherein the observation method includes a space between said transparent member and a specimen filled with a transparent liquid medium to observe said specimen and the transparent liquid between the objective lens and said transparent member is filled with a different transparent liquid medium of substantially the same refractive index as a refractive index of the transparent liquid medium between the transparent member and the specimen. Tomimatsu teaches an objective unit (figs. 5A and 5B) and an observation method wherein a space between a transparent member (11) and a specimen (12) is filled with a transparent liquid medium (12a) to observe said specimen and wherein a space between said

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objective lens and said transparent member is filled with a different transparent liquid medium (37) of substantially the same refractive index as a refractive index of said transparent liquid medium (column 5, lines 34-36). It would have been obvious to one having ordinary skill in the art at the time the invention was made to fill the space between said transparent member and a specimen with a transparent liquid medium to observe said specimen and wherein a space between said objective lens and said transparent member is filled with a different transparent liquid medium of substantially the same refractive index as a refractive index of said transparent liquid medium to the system of Davidovits et al. in view of Guerra, as taught by Tomimatsu, to reduce spherical aberration and obtain a higher quality image when observing specimens immersed in a liquid environment (Tomimatsu, column 1, lines 47-54).

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davidovits et al. as applied to claim 2 above and in further view of Hori et al., U.S. Patent No. 6,191,809 B1.

Davidovits et al. further disclose the optical apparatus having a beam diameter converting means (20) for producing a light beam that is incident on the objective lens. Davidovits et al. does not disclose a plurality of objectives held by the objective holder and a plurality of photodetectors. Hori et al. teach a microscope (fig. 1) with a plurality of objectives (8R, 8L) held by an objective holding means (4) and a plurality of photodetectors (18R, 18L).). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of objectives held by the objective holder and a plurality of photodetectors, as suggested by Hori et al., in the system of Davidovits et al. to provide differing views of the sample under examination.

Response to Arguments

9. Applicant's arguments filed 17 July 2003 have been fully considered but they are not persuasive.

Applicant argues that Davidovits et al. does not disclose the “objective holder” or “actuator” as amended. The examiner respectfully disagrees. Davidovits et al. does disclose an objective holder (62) that is provided on the outer frame member (fig. 3) and elastically holds the objective frame (in so far as the objective frame position can be moved/changed) and at least one actuator (column 5, lines 24-57 and column 3, lines 60-61) that causes relative movement between the objective frame (61) and the outer frame member (66) to thereby drive the objective lens. The definition of elastically is taken to be: capable of ready change or easy expansion or contraction – not rigid or constricted, as defined in Merriam-Webster’s Collegiate Dictionary, Tenth Edition.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (703) 305-5414. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (703) 305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



LAF

September 24, 2003


MARK A. ROBINSON
PRIMARY EXAMINER